

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WISCONSIN**

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General Electric Company,

Case No. 08-cv-298-bbc

Plaintiff-Counter-Defendant,

v.

SonoSite, Inc.,

Defendant-Counter-Plaintiff.

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**DEFENDANT-COUNTER-PLAINTIFF SONOSITE, INC'S RESPONSE TO GE'S  
MOTION FOR CLARIFICATION OF THE COURT'S CONSTRUCTION OF  
"SAMPLED DATA BEAMFORMER" [DKT. NO. 230] AND BRIEF IN SUPPORT  
THEREOF [DKT NO. 231]**

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## **I. INTRODUCTION**

Defendant SonoSite respectfully submits this memorandum in response to GE's Motion for Clarification of the Court's Construction of the Term "Sampled Data Beamformer." SonoSite agrees that two of the Court's orders in this case suggest an ambiguity concerning the construction of a key term in the asserted claims of the '412 patent: "sampled data beamformer." SonoSite further agrees that clarification of the claim construction is necessary and will facilitate presentation of evidence at trial. However, SonoSite opposes GE's suggested resolution of the ambiguity because it is inconsistent with the prosecution history of the '412 patent and with the expert testimony, and it is wholly illogical.

In the Court's Opinion and Order dated May 26, 2009 (Dkt. No. 227) (the "May 26 Order"), the Court described a "sampled data beamformer" as follows:

A sampled data beamformer is a beamformer that receives both digital and analog echo signals, combines and converts these signals and then outputs a digital signal.

May 26 Order at 34. This explanation of the operation of a sampled data beamformer differed in two respects from the construction set forth in the Court's Claim Construction Order last fall (Dkt. No. 82) (the "Markman Order"):

[I]n an ultrasound system, one or more components that delay and combine analog or digital samples of echo signals, or both such samples, received by elements of said array transducer.

Markman Order at 8. First, the May 26 Order affirmatively stated that the output of a sampled data beamformer is digital, whereas the Markman Order did not. Second, the May 26 Order suggests that a sampled data beamformer delays and combines both digital and analog samples of echo signals, rather than delaying and combining one or the other, or both.

As SonoSite will demonstrate below, the Court very correctly concluded, after reviewing all summary judgment evidence and arguments, that the disputed claim term should be interpreted with reference to the output of the beamformer. It further will explain that the Court's original construction regarding the option of digital or analog sampling was correct. Thus, a revised claim construction should read:

[I]n a medical diagnostic imaging system<sup>1</sup>, one or more components that delay and combine analog or digital samples of echo signals, or both such samples, received by elements of said array transducer and that output a digital signal.

This revision would reconcile the Court's May 26 Order with its Markman Order; would not require the parties to submit additional expert reports; and would not undermine the decisions related to summary judgment.

## **II. THE COURT MAY RECONSIDER AND REVISE ITS CLAIM CONSTRUCTION**

Claim construction is an issue of law. Thus, the Court has the authority to revisit and alter its interpretation of the claims in any way that is consistent with the law and the interests of justice. *Conoco, Inv. v. Energy & Env'tl. Int'l*, 460 F.3d 1349, 1359 (Fed. Cir. 2006) ("district courts may engage in 'rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves'") (citations omitted); *Ballard Medical Products v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1358 (Fed. Cir. 2001) (a district court has wide latitude to approach claim construction in any way that it deems best).

The Court's duty to properly construe the claims takes precedence over matters of convenience or expediency. Indeed, this Court has re-construed patent claims within days before a final pretrial conference. *John Mezzalingua Associates, Inc. v. Arris Intern., Inc.*, 2003 WL 23282752 (W.D. Wis. Nov. 14, 2003). More importantly, since

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<sup>1</sup> See SonoSite's Response to GE's Motion *In Limine* to Preclude SonoSite from Admitting Evidence Inconsistent with the Court's Claim Construction Order (Dkt. No. 228).

claim construction is reviewed *de novo* at the appellate stage, proper claim construction is essential to preventing waste of judicial resources. Stated more starkly, an error in claim construction can lead to reversal and remand—and retrial, to the detriment of the parties and to the judicial system.

### **III. THE CONSTRUCTION OF CLAIM 11 SHOULD BE REVISED TO REFLECT THAT “SAMPLED DATA BEAMFORMER” WAS ADDED TO DISTINGUISH THE CHIANG ‘658 PATENT**

U.S. Pat. No. 5,590,658 (“the Chiang ‘658 patent”) discloses a beamformer that uses Charge Couple Devices (CCDs) to delay and combine analog samples of received echo signals and then output an analog signal to the signal processing electronics. Declaration of Prof. Thomas L. Szabo in Support of SonoSite’s Responsive Claim Construction Brief (Dkt. No. 69) (“Szabo Rebuttal Decl.”) ¶ 7; Expert Report of Dr. Schafer (Dkt. No. 108-2) ¶¶ 114-15. As this Court noted in its May 26 Order, after the examiner of the ‘412 patent application cited the Chiang ‘658 patent against many of the original claims, the applicant’s patent attorney responded by amending the rejected claims to recite a “sampled data beamformer” instead of “beamformer”.<sup>2</sup> The attorney argued:

The Chiang et al. patent is directed to a scan head which includes a beamformer producing an analog electrical signal and an interface. As such, it is directed to a different invention than that of the present application, which claims an array transducer with a sampled data beamformer, which in a preferred embodiment is a digital beamformer. . . .

The Shinomura et al. device . . . appears, like Chiang et al., to be a conventional analog beamformer because the signals produced by the device must be A/D converted [i.e., converted from analog to digital] prior to being recorded or stored in the memory card 4A. . . . Consequently, there is no suggestion of a sampled data beamformer as recited in amended Claims 1 and 4.

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<sup>2</sup> In its Opposition to SonoSite’s Motions for Partial Summary Judgment Regarding Infringement and Validity (Dkt. No. 155) (“GE Summ. J. Opp. Br.”), GE conceded that this amendment was the sole reason the examiner allowed claim 11 over the Chiang ‘658 patent. GE Summ. J. Opp. Br. at 49.

File History of ‘412 patent (Dkt. No. 116) at 216-17 (emphasis added). Based on this clear intrinsic record, SonoSite contended last fall, during claim construction briefing, that “sampled data beamformer” should be construed to exclude beamformers, like Chiang, that produce an analog output. SonoSite Claim Construction Brief (Dkt. No. 56) (“SonoSite Cl. Con. Br.”) at 14-15.

GE, on the other hand, urged the Court last fall to reject SonoSite’s proposed construction and argued that the inventors added “sampled data beamformer” solely to distinguish “their claimed sampled data beamformer from conventional beamformers,” and not to make a point about the output of the patents that were being distinguished with the addition of “sampled data beamformer.” GE Claim Construction Brief (Dkt. No. 53) (“GE Cl. Con. Br.”) at 15 (emphasis added). In so doing, GE clearly implied that the Chiang ‘658 patent disclosed a “conventional beamformer,” and that the examiner allowed the amended claims reciting a “sampled data beamformer” because he also understood the Chiang ‘658 patent to suggest only a conventional beamformer, and not a sampled data beamformer:

Claim 11 of the ‘412 patent was amended to replace the term “beamformer” with “sampled data beamformer” in order to overcome the prior art. [citation omitted] . . . It is apparent that by this statement the patentees were distinguishing their claimed sampled data beamformer from conventional beamformers, which delay and sum only analog signals (which as previously discussed are the continuous echo signals from the transducer), and accordingly produce an analog signal.

*Id.* at 14-15(citing Declaration of Mark Schafer, Ph.D. in Support of Plaintiff-Counter-Defendant’s Motion for Construction of Claim Terms of U.S. Patent No. 5,722,412 (Dkt. No. 55) (“Schafer Decl.”) ¶ 23).

Yet, if one applies GE's own definition, the Chiang '658 patent does not disclose a "conventional beamformer" which delays and sums only analog signals. Rather, as both experts agree, Chiang '658 patent teaches a beamformer that uses Charge Couple Devices (CCDs) to delay samples of analog received echo signals, and then outputs an analog signal. Thus, the prior art that was "overcome" by the amendment (using GE's words) was not, as GE argued, simply conventional beamformer art as defined by GE: it included a patent that sampled analog signals and produced an analog output.

While GE's position is confusing and inconsistent, it is now clear in light of GE's summary judgment motion that GE has abandoned the position that the Chiang '658 patent simply disclosed a "conventional beamformer" and thus it has no credible basis to argue that the definition of "sampled data beamformer" need not address the beamformer output. As this Court implicitly recognized in its May 26 Order, it is totally illogical to say that the term "sampled data beamformer" was added to the claims to avoid the examiner's invalidity rejection in light of the Chiang '658 patent, and yet argue that the term "sampled data beamformer" is properly construed to cover the very same CCD analog technology disclosed by Chiang.

This seeming conundrum is readily rectified by revising the construction of "sampled data beamformer" to require that the output of the claimed sampled data beamformer be digital, just as ATL's patent attorney argued during prosecution. It is undisputed that the Chiang '658 and Shinomura patents do not output a digital signal, which is exactly how those patents were distinguished from the amended claims during prosecution. Such a revision of the claim construction would preserve to the inventors that which they invented (and which is described in the '412 patent specification) and would prevent GE from nullifying the very claim amendment made to distinguish claim 11 over the Chiang '658 patent in 1997.

**IV. THE COURT’S ORIGINAL CONSTRUCTION CORRECTLY SPECIFIES THAT A “SAMPLED DATA BEAMFORMER” MUST “DELAY AND COMBINE ANALOG OR DIGITAL SAMPLES OF ECHO SIGNALS OR BOTH SUCH SAMPLES” AND NEED NOT BE REVISED IN THIS REGARD**

The Court’s original construction required that a “sampled data beamformer” must “delay and combine analog or digital samples of echo signals or both such samples.”

Markman Order at 8. In contrast, the May 26 Order suggests that a sampled data beamformer delays and combines both digital and analog samples of echo signals, rather than delaying and combining one or the other, or both. The parties agree that the Court’s original construction was correct in this regard. *See* SonoSite Cl. Con. Br. at 11; GE Cl. Con. Br. at 10.

By statute, a dependent claim must be narrower in scope than the independent claim from which it depends.<sup>3</sup> Yet if “sampled data beamformer” were construed to require that a claimed beamformer delays and combines both digital and analog echo signals, dependent claim 16 would be broader in scope than independent claim 11. Specifically, the Court construed “a digital beamformer which delays and combines digital echo signals” in claim 16 as “in an ultrasound system, one or more components that delay and combine digital echo signals received by element of said array transducer.” Markman Order at 9. Thus, under the interpretation suggested in the May 26 Order, a beamformer that delays and combines only digital echo signals could read upon dependent claim 16 but not independent claim 11.

As the Court’s original construction requires that a sampled data beamformer delay and combine either digital or analog samples of echo signals, or both, claim 11 is appropriately broader in scope than claim 16. SonoSite respectfully submits (and GE agrees) that the Court’s original construction is correct in this one respect and need not be revised other than to add “and outputs a digital signal.”

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<sup>3</sup> *See* 35 U.S.C. § 112, ¶ 4 (“[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”).

SonoSite further concedes that reaffirmation of the Court's original construction, as revised to reflect the digital output, would negate the Court's finding that the Karaman Reference does not refer to a species of "sampled data beamformer" when it discusses a digital beamformer. The latter is a subset of the former under SonoSite's revised construction. This concession, however, does not overturn the Court's May 26 Order on the law of the case regarding anticipation by Karaman. *See infra*.

**V. THE PROPOSED CLAIM CONSTRUCTION REVISION WOULD NOT DISTURB THE COURT'S MAY 26 ORDER**

Adoption of SonoSite's proposed revision would not overturn any of the Court's May 26 Order regarding summary judgment. With respect to GE's motion for summary judgment of anticipation, and SonoSite's cross-motion for summary judgment of no anticipation, by the Karaman Reference (Dkt. No. 132-11), the Court ruled that there was no anticipation because two elements of claim 11 are not disclosed in Karaman: "sampled data beamformer" and the under-ten pound weight limitation. As discussed above, while SonoSite's proposed revision of the construction of "sampled data beamformer" would eliminate the first finding, it would not alter the second finding that Karaman does not disclose the under-ten pound weight limitation. Thus, under the Court's original construction and SonoSite's proposed revised construction, the outcome of the parties' cross-motions is the same: Karaman is not an anticipatory reference as to any of the asserted claims.

Likewise, the proposed revision would not affect the Court's May 26 Order regarding infringement. As the Court noted in its May 26 Order, the lightweight Venue 40 contains an array transducer and a digital beamformer, and the entire unit weighs less than ten pounds. May 26 Order at 30. Both Dr. Szabo and GE's expert Dr. Schafer agree that a "digital beamformer" outputs a digital signal and thus is an example of a sampled data beamformer. SonoSite Resp. Cl. Con. Br. at 12-13. The parties further agree that if the lightweight Venue 40 infringes claim 11, that product also infringes claims 12-14 and



16-18. *Id.* Thus, the summary judgment of infringement will not be affected if the Court adopts SonoSite's proposed revision to the construction of "sampled data beamformer."

## **VI. THERE IS NO PREJUDICE TO GE**

In asserting that claim 11 is invalid, GE is relying on only one piece of prior art involving a beamformer that samples and then outputs analog signals: the Chiang '658 patent. All other art listed in its expert report refer to digital beamformers, analog beamformers that do not sample the signals before delaying and combining them, or devices that have no beamformer at all. Thus, the only harm to GE if the Court revises its claim construction is that GE would lose its gamble that the Court would not notice its inconsistent legal positions regarding the Chiang '658 patent.

In addition, GE has known since proposed constructions were exchanged between the parties last fall that SonoSite considers the proper construction of the term "sampled data beamformer" to require that the output of the claimed beamformer must be digital. Entering the proposed revision now would be far less prejudicial than to have the court of appeals reverse an erroneous construction and remand for a new trial, a consequence that is likely indeed in light of the clear intrinsic record.

## **VII. CONCLUSION**

For the foregoing reasons, SonoSite respectfully requests that the Court revise its construction of "sampled data beamformer" as follows:

[I]n a medical diagnostic imaging system, one or more components that delay and combine analog or digital samples of echo signals, or both such samples, received by elements of said array transducer and that output a digital signal.

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